

Traumatic Brain Injury (TBI)-related Emergency Department (ED) Visits, Hospitalizations and Deaths: Maryland, 2012 - 2015

Section 1. Deaths

Table 1: Number and rate of TBI-related deaths by age group, Maryland 2012 – 2015

Year	2012	2013	2014	2015
Number of TBI-related deaths	706	664	649	686
Age group (years)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)
<1 year	#	#	#	#
1-4	#	#	#	#
5-14	#	#	#	#
15-24	79(1.4)	63(1.1)	52(0.9)	61(1.1)
25-34	61(1.0)	72(1.2)	64(1.0)	76(1.2)
35-44	56(1.2)	48(1.0)	61(1.3)	75(1.6)
45-54	94(1.4)	84(1.3)	64(1.0)	65(1.0)
55-64	99(1.2)	94(1.1)	85(1.0)	94(1.0)
65-74	66(1.0)	66(1.0)	75(1.0)	77(1.0)
75-84	108(2.1)	107(2.1)	100(1.9)	104(2.0)
85+	133(1.9)	122(1.7)	139(1.9)	124(1.7)
TOTAL	706(11.5)	664(10.6)	649(10.3)	686(10.8)

*age-adjusted to the 2000 US Standard population (per 100,000 population).

Number and rate not reported when number of decedents < 6.

Table 2: Number and rate of TBI-related deaths by sex, Maryland 2012 – 2015

Year	2012	2013	2014	2015
Sex	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)
Female	189(5.3)	182(5.2)	185(5.0)	173(4.8)
Male	517(18.6)	482(17.2)	464(16.5)	513(17.8)

*age-adjusted to the 2000 US Standard population (per 100,000 population).

Table 3: Number and rate of TBI-related deaths by race, Maryland 2012 – 2015

Year	2012	2013	2014	2015
Race	Number (crude rate*)	Number (crude rate*)	Number (crude rate*)	Number (crude rate*)
White	512(14.3)	492(13.7)	474(13.2)	469(13.1)
Black	182(10.3)	156(8.7)	154(8.5)	205(11.2)
Other **	12	16	21	12

*crude rate per 100,000 population.

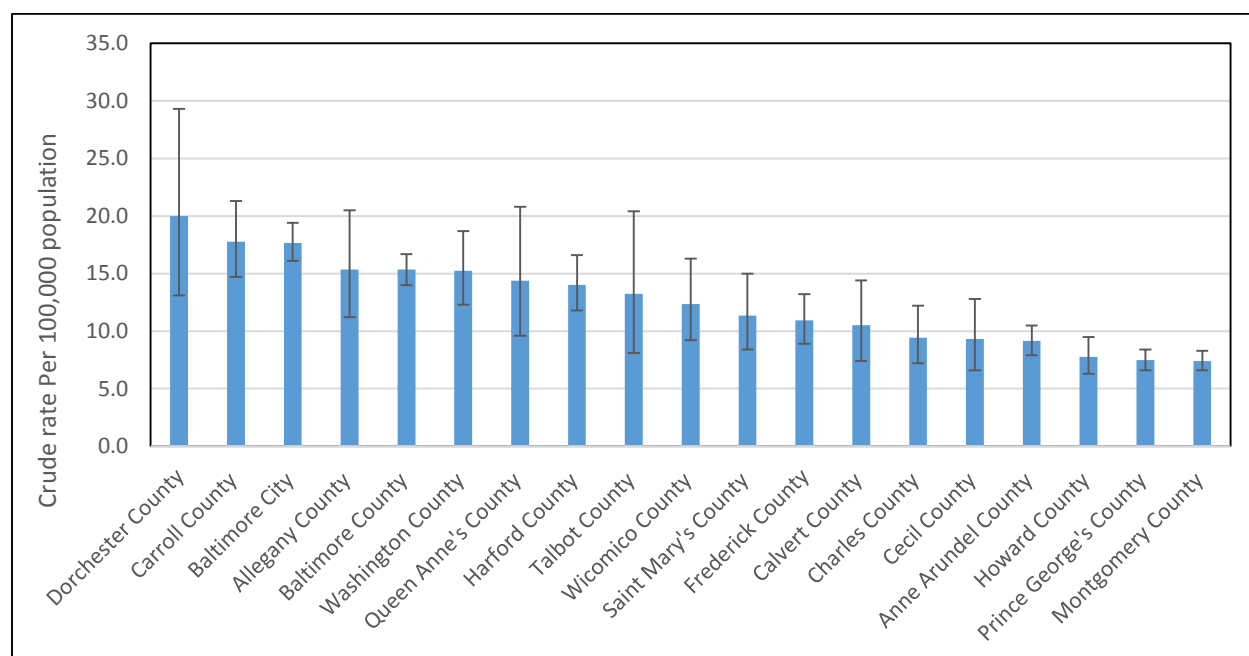
**rates not reported where race=Other.

Table 4: Number and rate of TBI-related deaths by mechanism of injury, Maryland 2012 – 2015

Year	2012	2013	2014	2015
Mechanism of injury	Number (age- adjusted rate*)	Number (age- adjusted rate*)	Number (age- adjusted rate*)	Number (age-adjusted rate*)
TBI-related unintentional fall fatalities	263(4.2)	272(4.3)	276(4.2)	278(4.2)
Firearm-related TBI fatalities	294(4.8)	266(4.3)	261(4.2)	279(4.6)
TBI-related homicides	95(1.6)	76(1.3)	62(1.1)	112(1.9)
TBI-related motor vehicle traffic fatalities	72(1.2)	62(1.0)	55(0.9)	57(0.9)
TBI-related suicides	216(3.5)	211(3.4)	205(3.2)	187(3.0)

*age-adjusted to the 2000 US Standard population (per 100,000 population).

Figure 1: Rate* of TBI-related deaths by jurisdiction of residence[¶], Maryland 2012 – 2015



*crude rate per 100,000 population.

[¶] excludes out-of-state resident deaths of Maryland residents.

Error bars indicate 95% confidence intervals.

Rates not reported for the following jurisdictions where number of decedents is < 20 because such rates are considered unstable: Caroline, Garrett, Kent, Somerset and Worcester Counties.

Section 2. Emergency Department Visits

Table 5: Number and rate of TBI-related ED visits by age group, Maryland 2012 – 2015

Number of TBI-related ED visits	38,128	38,265	39,177	39,721
Year	2012	2013	2014	2015†
Age group (years)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)
<1 year	1,304 (25.0)	1,137 (21.4)	1,165(22.0)	1,199 (22.7)
1-4	3,763 (71.0)	3,506 (66.0)	3,513 (65.5)	3,258 (60.9)
5-14	6,446 (125.8)	6,275 (122.1)	6,071(117.6)	5,833 (113.3)
15-24	7,592(131.5)	7,369(128.8)	7,183(125.9)	7,021 (124.1)
25-34	4,435(75.0)	4,532(75.1)	4,566(74.7)	4,758 (77.1)
35-44	3,054(64.1)	3,263(68.9)	3,307(69.9)	3,382 (71.6)
45-54	3,376(50.8)	3,488(53.0)	3,618(55.6)	3,744 (58.1)
55-64	2,396 (28.4)	2,725(31.7)	2,975(33.9)	3,289 (36.7)
65-74	1,762(27.0)	1,982(28.7)	2,335(32.3)	2,625 (34.8)
75-84	2,061(40.9)	2,055(40.2)	2,258 (43.3)	2,342 (44.0)
85+	1,939(28.4)	1,933(27.5)	2,186 (30.5)	2,270 (31.1)
TOTAL	38,128 (667.8)	38,265(663.4)	39,177 (671.1)	39,721(674.6)

*age-adjusted to the 2000 US Standard population (per 100,000 population).

† Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

Table 6: Number and rate of TBI-related ED visits by sex, Maryland 2012 – 2015

Year	2012	2013	2014	2015†
Sex	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)
Female	17,792(594.1)	18,461(609.1)	19,382(631.8)	19,731 (636.1)
Male	20,334(735.9)	19,799(710.0)	19,786(704.1)	19,983 (707.9)
Unknown	0	¶	0	¶

*age-adjusted to the 2000 US Standard population (per 100,000 population).

† Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

¶ To preserve confidentiality, cell counts <11 are not reported.

Table 7: Number and rate of TBI-related ED visits by race, Maryland 2012 – 2015

Year	2012	2013	2014	2015‡
Race	Number (crude rate*)	Number (crude rate*)	Number (crude rate*)	Number (crude rate*)
White	22,647(632.7)	21,434(597.8)	20,982(584.5)	21,956(613.0)
Black	11,990(678.6)	11,707(655.0)	11,004(608.2)	11,861(648.3)
Other**	3,491	5,124	7,191	5,904

*crude rate per 100,000 population.

**rates not reported where race=Other.

2013-2015 race data should be interpreted with caution due to a method change.

‡ Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

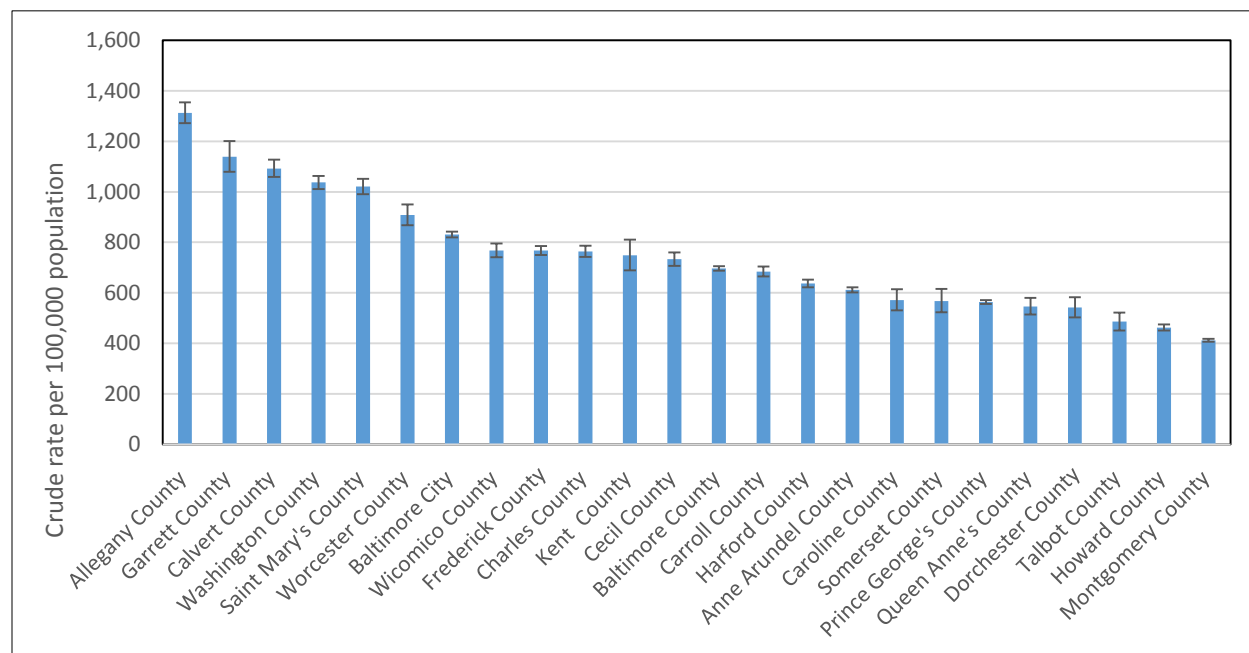
Table 8: Number and rate of TBI-related ED visits by mechanism of injury, Maryland 2012 – 2015.

Year	2012	2013	2014	2015‡
Mechanism of injury	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)
TBI-related unintentional fall ED visits	17,252(299.7)	17,349 (296.8)	18,601(312.5)	19,141 (317.2)
Firearm-related TBI ED visits	30(0.5)	21 (0.4)	26 (0.4)	29 (0.5)
TBI-related assault ED visits	3,947(68.4)	3,846 (66.4)	3,834 (66.4)	3,734 (64.2)
TBI-related motor vehicle traffic ED visits	5,902 (101.4)	6,294 (107.7)	6,516 (110.9)	6,652 (113.0)
TBI-related struck by/against ED visits	8,506 (153.8)	8,320 (149.7)	7,855 (140.1)	7,935 (140.9)
TBI-related suicide attempts ED visits	28 (0.5)	30 (0.5)	27 (0.5)	27 (0.4)

*age-adjusted to the 2000 US Standard population (per 100,000 population).

‡ Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

Figure 2: Rate of TBI-related ED visits by jurisdiction of residence*, Maryland 2012 – 2015 ‡



*excludes out-of-state ED visits of Maryland residents.

Error bars indicate 95% confidence intervals.

‡ Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

Section 3. Hospitalizations

Table 9: Rate of TBI-related hospitalizations by age group, Maryland 2012 – 2015

Number of TBI-related injury Hospitalizations	5,231	4,677	4,279	4,422
Year	2012	2013	2014	2015†
Age group (years)	Number(age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)
<1 year	58(1.1)	69 (1.3)	68 (1.3)	58 (1.1)
1-4	60 (1.1)	47 (0.9)	67 (1.3)	57 (1.1)
5-14	122 (2.4)	103 (2.0)	121 (2.3)	93(1.8)
15-24	779 (13.5)	588 (10.3)	364 (6.4)	408 (7.2)
25-34	586 (9.9)	500 (8.3)	399 (6.5)	410(6.6)
35-44	450 (9.4)	349 (7.4)	294 (6.2)	311(6.6)
45-54	662 (10.0)	557 (8.5)	439 (6.7)	449(7.0)
55-64	617 (7.3)	561(6.5)	544 (6.2)	535(6.0)
65-74	485 (7.4)	520 (7.5)	540 (7.5)	596(7.9)
75-84	697 (13.8)	695 (13.6)	739 (14.2)	751(14.1)
85+	715 (10.5)	688 (9.8)	704 (9.8)	754(10.3)
TOTAL	5,231(86.5)	4,677 (76.0)	4,279 (68.4)	4,422 (69.7)

*age-adjusted to the 2000 US Standard population (per 100,000 population).

† Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

Table 10: Number and rate of TBI-related hospitalizations by sex, Maryland 2012 – 2015

Year	2012	2013	2014	2015†
Sex	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)	Number (age-adjusted rate*)
Female	1,977 (58.3)	1,856 (54.3)	1,687 (47.2)	1,747 (48.2)
Male	3,253 (116.7)	2,820 (100.4)	2,592 (91.8)	2,673 (93.6)
Unknown	0	¶	0	0

¶ To preserve confidentiality cell counts < 11 are not reported..

† Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

Table 11: Number and rate of TBI-related hospitalizations by race, Maryland 2012 – 2015

Year	2012	2013	2014	2015‡
Race	Number (crude rate*)	Number (crude rate*)	Number (crude rate*)	Number (crude rate*)
White	3,308(92.4)	2,920(81.4)	2,593(72.2)	2,666(74.4)
Black	1,482(83.9)	1,234(69.0)	1,086(60.0)	1,208(66.0)
Other	441	523	600	548

*crude rate per 100,000 population.

**rates not reported where race=Other.

2013-2015 race data should be interpreted with caution due to a method change.

‡ Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

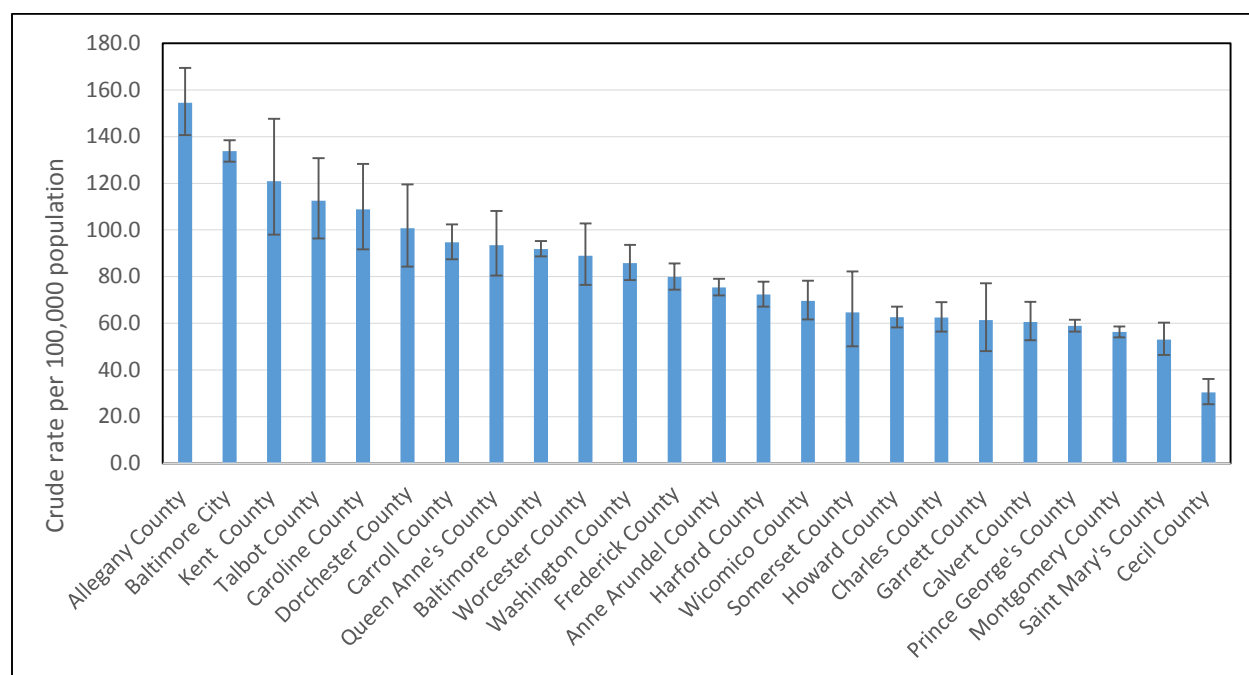
Table 12: Number and rate of TBI-related hospitalizations by mechanism of injury, Maryland 2012 – 2015

Year	2012	2013	2014	2015‡
Mechanism of injury	Number (age- adjusted rate*)	Number (age- adjusted rate*)	Number (age- adjusted rate*)	Number (age- adjusted rate*)
TBI-related unintentional fall hospitalizations	2,509 (40.9)	2,468(39.4)	2,506 (39.2)	2,527 (38.6)
Firearm-related TBI hospitalizations	74 (1.3)	73 (1.3)	63 (1.1)	80 (1.4)
TBI-related assault hospitalizations	530 (8.9)	460 (7.8)	328 (5.4)	365 (6.0)
TBI-related motor vehicle traffic hospitalizations	1,478 (24.7)	1,137 (18.9)	932 (15.4)	1,038 (17.1)
TBI-related suicide attempts hospitalizations	32 (0.5)	39 (0.6)	35 (0.6)	22 (0.4)
TBI-related struck by/against hospitalizations	136 (2.3)	121 (2.0)	87 (1.4)	86 (1.4)

*age-adjusted to the 2000 US Standard population (per 100,000 population).

‡ Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

Figure 3: Rate of TBI-related hospitalizations by jurisdiction of residence*, Maryland 2012-2015[‡]



Error bars indicate 95% confidence intervals.

* excludes out-of-state hospitalizations of Maryland residents.

[‡] Because of the ICD-10-CM transition, 2015 data is for the Federal fiscal year 10/1/2014 through 9/30/2015.

Notes:

1. The HSCRC data presented in this data brief refers to encounters with the healthcare system – not to individuals or to individual injury incidents. Recurring visits, either for the same injury, or for subsequent injuries are counted separately.
2. This data brief excludes ED visits, hospitalizations or deaths of Maryland residents that occurred outside Maryland, which underestimates the total burden of TBI injury to Maryland residents.
3. The 2013-2015 race data should be interpreted with caution due to a method change.
4. The methodology used to identify Maryland residents in the HSCRC data files changed in 2012. Therefore, reports based on 2012 data and beyond may not be comparable to reports based on earlier years.
5. Coding of Hospitalization and ED visit data transitioned from ICD9-CM to ICD10-CM on October 1, 2015. Because of the transition, the TBI-related ED visits and Hospitalizations for 2015 are reported for Federal Fiscal Year October 1, 2014 through September 30, 2015.

Definition: TBI-related hospitalizations and ED visits were identified based on the International Classification of Diseases, 9th Edition, Clinical Modification (ICD-9-CM) codes: 800.00-801.99, 803.00-804.99, 850.0-854.19, 950.1-950.3, 959.01 or 995.55.

TBI-related deaths were identified using the International Classification of Diseases, 10th Revision (ICD-10) codes: S01.0-S01.9, S02.0-S02.1, S02.3, S02.7-S02.9, S04.0, S06.0-S06.9, S07.0, S07.1, S07.8, S07.9, S09.7-S09.9, T01.0, T02.0, T04.0, T06.0, T90.1, T90.2, T90.4, T90.5, T90.8, T90.9.

Data sources: For emergency department visits and Hospitalizations - Health Services Cost Review Commission (HSCRC); For deaths, multiple-cause-of-death files from Maryland Vital Statistics Administration.

Population source: US Census Bureau Annual estimates of the resident Population: April 1, 2010 to July 1, 2016.

https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2016_PEPANNRES&src=pt